REMARKS

Claims 1-16 are pending in this application. Attached hereto is a complete listing of all the pending claims. By this Response, claims 1-9 and 14 have been amended, and are presented with markings to indicate their current amendments.

Claim 1 has been amended in response to the Examiner's rejection under 35 U.S.C. § 101, and is now directed to statutory subject matter.

The amendments to claims 1-9 and 14 are directed to an "ultra wide band network," or to "network communication comprising a multiplicity of ultra wide band signals." An ultra wide band network, as claimed, is disclosed and supported in the third paragraph on page 12 of co-pending United States Patent Application Serial No. 09/393,121, filed September 10, 1999, titled: MEDIUM ACCESS CONTROL PROTOCOL FOR CENTRALIZED WIRELESS NETWORK COMMUNICATION MANAGEMENT, which is incorporated in its entirety in the present application in several places in the specification, including page 10, lines 5-8; page 25, lines 9-13; and other locations.

Ultra wide band (UWB) communication technology employs pulses of electromagnetic energy that are emitted at nanosecond or picosecond intervals (generally tens of picoseconds to a few nanoseconds in duration). For this reason, ultra wide band is often called "impulse radio." That is, the UWB pulses may be transmitted without modulation onto a sine wave carrier frequency, in contrast with conventional radio frequency technology. Ultra wide band generally requires neither an assigned frequency nor a power amplifier.

For example, conventional radio frequency technology employs continuous sine waves that are transmitted with data embedded in the modulation of the sine waves' amplitude or frequency. Thus, a conventional cellular phone must operate at a particular frequency band of a particular width in the total frequency spectrum. Specifically, in the United States, the Federal

Communications Commission has allocated cellular phone communications in the 800 to 900 MHz band. Cellular phone operators use 25 MHz of the allocated band to transmit cellular phone signals, and another 25 MHz of the allocated band to receive cellular phone signals.

In contrast, a UWB pulse may have a 1.8 GHz center frequency, with a frequency spread of approximately 3.6 GHz. A UWB pulse is a single electromagnetic burst of energy. Generally, the narrower the UWB pulse in time, the broader the spread of its frequency spectrum. This is because bandwidth is inversely proportional to the time duration of the pulse. A 600 picosecond UWB pulse can have about a 1.8 GHz center frequency, with a frequency spread of approximately 4.0 GHz. And a 300 picosecond UWB pulse can have about a 3 GHz center frequency, with a frequency spread of approximately 8 GHz. Thus, UWB pulses generally do not operate within a specific frequency. And because UWB pulses are spread across an extremely wide frequency range or bandwidth, UWB communication systems allow communications at very high data rates, such as 100 megabits per second or greater.

Rejection Under 35 U.S.C. § 103

In paragraphs 2and 3of the Office Action, claims 1-16nd rejected as unpatentable under 35 U.S.C. § 103(a) over U.S. Patent 6,097,707 ("Hodzic") in view of U.S. Patent 6,347,084 ("Hulyalkar"). Applicant respectfully traverses this rejection.

A. The Law of Obviousness

In order to establish a prima facie case of obviousness, three basic criteria must be met:

> "First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined), must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure." M.P.E.P. § 2142.

Applicants submit that neither Hodzic nor Hulyalkar, alone or in combination, teach or suggest all of the claim limitations found in amended independent claims 1, 9 or 14. As discussed above, each of the amended independent claims recites, in part, an "ultra wide band network," or "network communication comprising a multiplicity of ultra wide band signals."

As discussed above, ultra wide band communications does not generally require an assigned frequency. Instead, ultra wide band technology broadcasts pulses of very short duration to transmit a signal across a very broad frequency spread. In contrast, conventional carrier wave systems, as taught in both Hodzic and Hulyalkar, emit a continuous waveform at a specific, narrow frequency.

For example, Hodzic teaches a "single channel wireless digital communication network" with a "cellular topology" (Abstract). One object of Hodzic is "to provide a wireless radio frequency communications network which can utilize the existing worldwide cellular infrastructure" (col. 1, lines 55-58). As discussed above, the existing cellular infrastructure in the United States operates in the 800 to 900 MHz frequency band.

Similarly, Hulyalkar teaches a method for synchronizing timestamps in a network, such as a wireless ATM network (Abstract). Hulyalkar discloses the problem of collisions of data packets sent by multiple transmitters using the same communications channel (col. 1, lines 11-14). The communications channels taught in Hulyalkar are IEEE 802.11 or IEEE 1394 protocols (col. 2, lines 66-67, and col. 3, lines 1-3). IEEE 802.11 is a protocol for wireless LANs that operates in the 2.4 GHz band, and IEEE 1394 is a protocol for high-speed serial buses.

Thus, both Hodzic and Hulyalkar teach conventional communications though specific, assigned radio frequency channels. As discussed above, ultra wide band technology transmits across a wide frequency spectrum, and does not operate within a specific radio frequency. There is no teaching or suggestion in either Hodzic or Hulyalkar of ultra wide band technology.

Therefore, neither Hodzic nor Hulyalkar, alone or in combination, teach or suggest all of the claim limitations found in independent claims 1, 9 and 14. Consequently, Applicant respectfully submits that the rejection has been traversed. Because claims 2-8, 10-13 and 15-16 depend from either claim 1, 9 or 14, it is respectfully submitted that the rejection of claims 2-8, 10-13 and 15-16 have been traversed by virtue of their dependency from either claim 1, 9 or 14. M.P.E.P. § 2143.03.

Conclusion

Applicant believes that this Response has addressed all items in the Office Action and now places the application in condition for allowance. Accordingly, favorable reconsideration and allowance of claims 1-16 at an early date is solicited. No fee is believed due with this response. However, the Commissioner is authorized to charge any fee required to our Deposit Account No. 50-2298, in the name of Luce, Forward, Hamilton & Scripps LLP. Should any issues remain unresolved, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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Date

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